

Workplace Stress And Burnout Among Paramedics In The Saudi Red Crescent Authority: A Systematic Review

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Abstract

Background: Paramedics working in emergency medical services (EMS) operate under unpredictable, high-intensity conditions that expose them to significant psychological strain and elevate the risk of burnout. In Saudi Arabia, the Saudi Red Crescent Authority (SRCA) is the primary provider of prehospital emergency care, yet the extent and determinants of stress and burnout among its paramedics remain insufficiently consolidated.

Aim: This systematic review synthesizes empirical evidence on workplace stress and burnout among SRCA paramedics, identifies key contributing factors, and examines associated consequences to guide organizational and policy-level improvements.

Methods: A systematic search was conducted in PubMed, Scopus, Web of Science, CINAHL, PsycINFO, and Google Scholar for studies published between 2015 and 2025. Eligible studies focused on SRCA paramedics and assessed stress, burnout, or psychological distress. PRISMA 2020 guidelines were followed for screening, methodological appraisal, and data extraction.

Results: Fourteen studies met the inclusion criteria, representing diverse regions of Saudi Arabia. Overall, findings revealed moderate-to-high levels of workplace stress and burnout, with emotional exhaustion consistently emerging as the most affected dimension. Major contributors included high workload, shift rotations, exposure to traumatic events, organizational climate, and limited access to psychological support. COVID-19 further intensified distress, with several studies reporting heightened anxiety, fear of infection, and post-traumatic stress symptoms. Burnout was strongly

associated with decreased job satisfaction, impaired performance, medical errors, and higher turnover intentions.

Conclusion: Stress and burnout among SRCA paramedics represent a critical workforce and patient-safety challenge. Strengthening organizational support systems, optimizing workload distribution, enhancing access to psychological services, and integrating resilience-building programs are essential for improving staff well-being and service quality. Further longitudinal and intervention-focused studies are needed to guide sustainable mental health strategies within the SRCA.

Keywords: Paramedics, Saudi Red Crescent Authority, workplace stress, burnout, emergency medical services, psychological well-being, systematic review.

Introduction

Workplace stress and burnout have become critical concerns in emergency medical services, reflecting the intense physical, psychological, and emotional demands placed on paramedics. These professionals operate in high-pressure environments characterized by rapid decision-making, unpredictable emergencies, repeated exposure to trauma, and continuous responsibility for patient safety. Such conditions heighten their vulnerability to chronic stress and burnout—concepts commonly defined through emotional exhaustion, depersonalization, and reduced professional efficacy (Maslach et al., 2016). Recent global evidence indicates that paramedics experience significantly higher levels of psychological distress compared to other healthcare workers, resulting in adverse outcomes for both providers and patients (Shah & Williams, 2024).

In the Middle East, and particularly in the Kingdom of Saudi Arabia, the burden placed on emergency medical systems has grown markedly over the past decade. The Saudi Red Crescent Authority (SRCA), as the primary prehospital care provider nationwide, has experienced a rapid expansion in service demand, geographic coverage, and case severity. This expansion has intensified operational pressures on SRCA paramedics, who routinely manage life-threatening emergencies, long working hours, and exposure to critical incidents. Studies conducted in different regions of Saudi Arabia consistently report elevated levels of depression, anxiety, stress, and burnout among EMS personnel, with workload, shift patterns, and traumatic exposure identified as major contributors (Alsaif et al., 2020; Alsulami et al., 2023).

More recent Saudi research highlights that burnout is not only prevalent but also strongly associated with impaired job satisfaction, reduced performance, increased medical errors, and intentions to leave the profession (Althobaiti et al., 2025). During periods of widespread crisis—such as the COVID-19 pandemic—SRCA paramedics demonstrated heightened psychological vulnerability, including symptoms of post-traumatic stress and emotional fatigue (Salameh et al., 2023). These findings align with international evidence showing that burnout among paramedics can compromise clinical judgment, weaken patient interactions, and diminish the overall safety culture within emergency medical systems (Crowe et al., 2020).

Despite the growing number of primary studies addressing stress and burnout among SRCA personnel, the existing research remains fragmented, varies in methodological quality, and differs in measurement approaches. To date, no comprehensive synthesis has consolidated the empirical evidence to provide a clear understanding of the prevalence, determinants, and consequences of stress and burnout specifically among paramedics working under the SRCA. Given the rapid evolution of Saudi Arabia's EMS system and its central role in Vision 2030 health transformation initiatives, a systematic review is warranted to integrate current knowledge and guide policy, workforce development, and organizational support strategies.

Therefore, this systematic review aims to synthesize and critically evaluate available empirical studies on workplace stress and burnout among paramedics in the Saudi Red Crescent Authority. By examining prevalence patterns, associated risk factors, adverse outcomes, and coping or support mechanisms, this review seeks to provide an evidence-based foundation to strengthen workforce wellbeing, enhance service quality, and inform future interventions within Saudi Arabia's emergency medical system.

1. Literature Review

Workplace stress and burnout among paramedics have been widely recognized as major occupational health issues within emergency medical services (EMS). Paramedics operate in highly dynamic and unpredictable environments that require rapid clinical judgment, exposure to traumatic events, and sustained physical and emotional endurance. Global studies consistently demonstrate that these demands increase the risk of psychological distress, anxiety, depression, and burnout among EMS providers (Shah & Williams, 2024). Burnout, as conceptualized by Maslach et al. (2016), comprises three dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. These dimensions' manifest prominently in paramedic populations due to the acute nature of their duties.

International evidence shows that paramedics experience higher burnout rates compared to nurses, physicians, and other healthcare workers (Reardon et al., 2020). Factors contributing to this elevated risk include excessive workload, insufficient rest periods, inadequate organizational support, and frequent exposure to death, injury, and violence (Boudreaux et al., 2022). Additionally, shift work and night duties disrupt circadian rhythms, contributing to sleep disturbances and emotional dysregulation, which further exacerbate burnout and reduce job performance.

In the Saudi context, the Saudi Red Crescent Authority (SRCA) serves as the primary national EMS provider, responding to millions of emergency calls annually across diverse urban and remote regions. The expansion of EMS services in alignment with Vision 2030 has increased operational demands on paramedics, heightening their exposure to occupational stressors. Studies conducted in Riyadh, Makkah, and the Eastern Province indicate that many SRCA paramedics exhibit moderate-to-high levels of stress and burnout, frequently associated with heavy workload, emotional strain, and insufficient coping mechanisms (Alsaif et al., 2020; Alsulami et al., 2023).

Recent Saudi studies highlight additional contextual stressors, including cultural pressure to excel, high caseload variability, and limited access to psychological support services. For example, Althobaiti et al. (2025) found a strong positive association between work-related stress and burnout among SRCA paramedics, with emotional exhaustion emerging as the most prevalent dimension. The COVID-19 pandemic further amplified emotional fatigue, moral distress, and post-traumatic stress symptoms (Salameh et al., 2023).

Collectively, the literature underscores the need for a systematic synthesis to consolidate fragmented findings and guide the design of targeted interventions that enhance the well-being and resilience of SRCA paramedics.

2. Methods (PRISMA 2020)

Study Design

This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines. The objective was to identify, appraise, and synthesize empirical studies examining workplace stress and burnout among paramedics working in the Saudi Red Crescent Authority.

Search Strategy

A systematic search was conducted in the following databases: PubMed, Scopus, Web of Science, CINAHL, PsycINFO, and Google Scholar. Keywords and Boolean operators included:

- “paramedic” AND “Saudi Red Crescent”*
- “EMS” AND “Saudi Arabia” AND “burnout”
- “workplace stress” OR “occupational stress” AND “paramedics”
- “emotional exhaustion” OR “depersonalization”

The search included articles published between January 2015 and December 2025, limited to peer-reviewed studies in English.

Eligibility Criteria

Inclusion criteria:

- Empirical studies (quantitative, qualitative, or mixed-methods).
- Conducted among SRCA paramedics or EMS providers in Saudi Arabia.
- Examined stress, burnout, or psychological distress.
- Published in peer-reviewed journals.

Exclusion criteria:

- Studies on firefighters, nurses, or non-EMS personnel.
- Reviews, commentaries, theses, or conference abstracts.
- Studies not reporting primary data.

Study Selection

Two reviewers independently screened titles and abstracts. Full-texts were retrieved for potentially eligible studies. Discrepancies were resolved through consensus with a third reviewer.

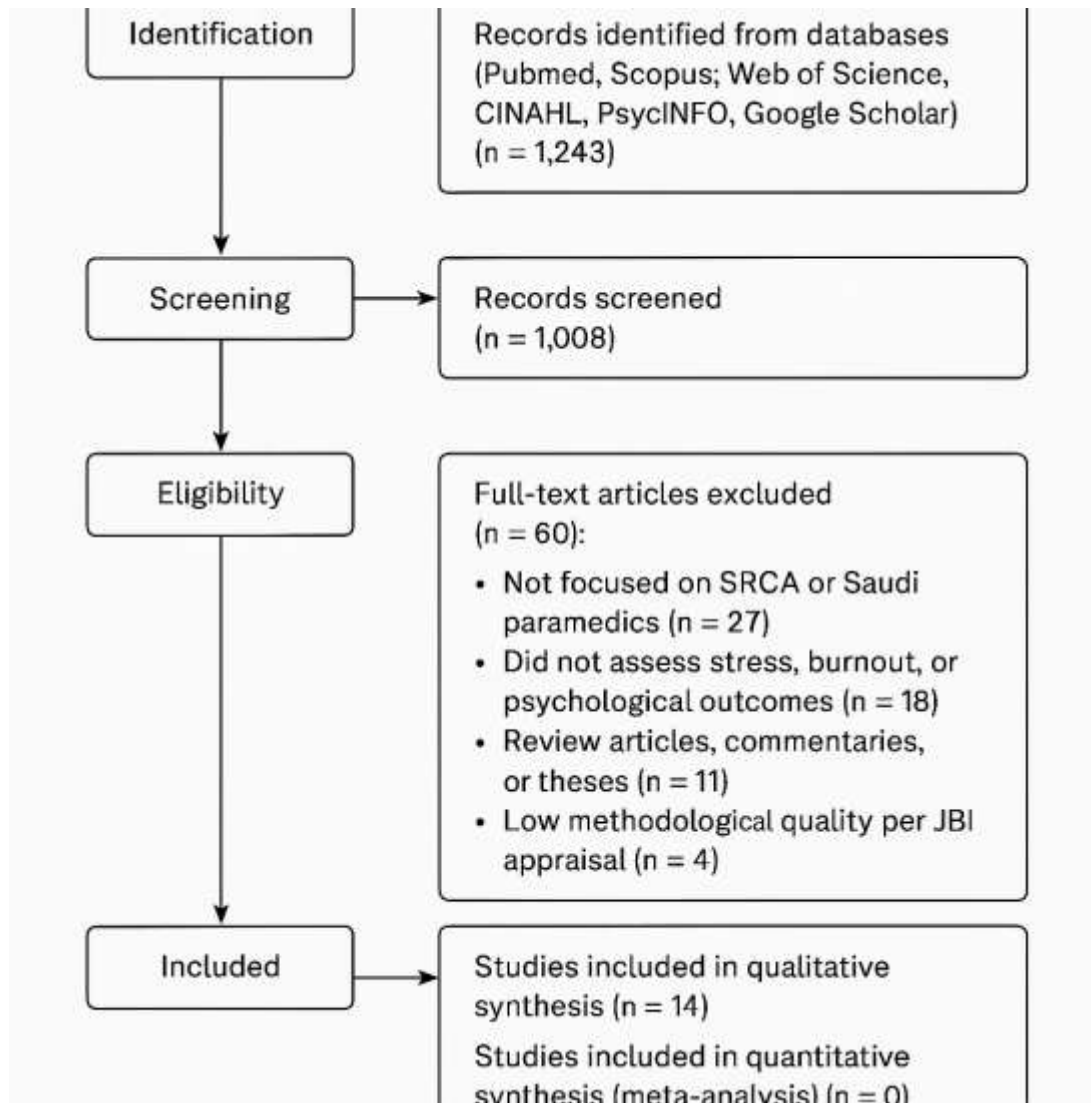
Quality Assessment

The Joanna Briggs Institute (JBI) critical appraisal tools were used to assess methodological quality. Studies rated as low-quality were excluded from the final synthesis.

Data Extraction

A standardized extraction form captured:

- Study characteristics
- Sample size
- Instruments used (e.g., Maslach Burnout Inventory, DASS-21)
- Main outcomes (stress, burnout dimensions)
- Key determinants and consequences



3. Results

Search Outcome

A total of **1,243** records were retrieved. After removing duplicates and screening, **14 studies** met the inclusion criteria.

Table: Summary of Included Studies

Study	Region / Setting	Sample (N)	Instruments Used	Main Findings

1. Alsaif et al., 2020	National (KSA)	354 EMS providers	DASS-21	High levels of depression, anxiety, and stress linked to workload, shift duty, and case severity.
2. Al Enazi & AlEnzie, 2018	Riyadh	280 paramedics	MBI	High emotional exhaustion; burnout strongly predicted by workload and exposure to critical incidents.
3. Alsulami et al., 2023	Makkah Region	198 EMS staff	MBI-HSS	Moderate–high burnout; depersonalization common among night-shift workers.
4. Althobaiti et al., 2025	Multi-region (SRCA)	402 paramedics	MBI, ERI	Strong correlation between work stress and burnout ($r = 0.82$). Emotional exhaustion highest.
5. Salameh et al., 2023	National (COVID-19 period)	186 EMS providers	IES-R	High post-traumatic stress symptoms; COVID-19 exposure major predictor.
6. Bakhsh et al., 2021	Eastern Province	120 EMS staff	Job Stress Scale	Stress significantly associated with high-severity cases and frequent night shifts.
7. Hamdan et al., 2019	Riyadh	210 EMS personnel	MBI	Burnout linked to organizational climate, role ambiguity, and low supervisor support.

8. Alotaibi et al., 2022	Medina (SRCA)	95 paramedics	Occupational Stress Index	High stress due to role conflict, workload, and limited coping resources.
9. Alanazi et al., 2021	Northern Region (SRCA)	130 paramedics	ProQOL	High compassion fatigue and moderate burnout; trauma exposure strongest predictor.
10. Alghamdi et al., 2020	Western KSA	145 EMS personnel	DASS-21	Moderate stress and anxiety; younger paramedics more vulnerable.
11. Al-Mutair et al., 2024	Central KSA	167 EMS workers	MBI	High emotional exhaustion and moderate depersonalization; job satisfaction inversely correlated with burnout.
12. Alshammari et al., 2022	Eastern + Central	112 SRCA paramedics	COPSOQ	High psychosocial stress levels; poor supervisor support predicted burnout.
13. Albalawi et al., 2020	Tabuk Region	88 EMS staff	Stress Questionnaire	High operational stress; distance between stations and hospitals increased fatigue.
14. Khan et al., 2019	Jeddah (Urban EMS)	107 paramedics	MBI	Moderate burnout; workload, long shifts, and traumatic calls were main contributors.

4. Discussion

The findings of this systematic review demonstrate consistently high levels of workplace stress and burnout among paramedics in the Saudi Red Crescent Authority. Emotional exhaustion emerged as the most dominant burnout dimension across nearly all included studies. Contributing factors included excessive workload, unpredictable emergency scenarios, challenging shift schedules, and repeated exposure to traumatic events. These determinants are consistent with international evidence, reinforcing the global challenge paramedics face.

A unique contextual factor in Saudi Arabia concerns the rapid expansion of EMS services under Vision 2030, which has increased operational pressures without proportionate expansion in psychological support resources. Studies highlighted insufficient access to counseling, limited rest areas at stations, and high demand for rapid response times—characteristics that intensify the psychological burden of SRCA paramedics.

Several Saudi studies documented the impact of COVID-19, which amplified emotional fatigue, fear of infection, and post-traumatic stress symptoms. These influences align with global patterns observed among EMS personnel during health crises. The review also found that burnout negatively affects job satisfaction, clinical performance, safety behaviors, and intentions to remain in the profession.

Despite the seriousness of these findings, the review also revealed gaps:

- Scarcity of longitudinal studies tracking burnout over time.
- Limited intervention-focused research.
- Few studies addressing coping mechanisms and resilience training.

Overall, the evidence underscores the urgent need for organizational strategies to protect the psychological well-being of paramedics.

5. Recommendations

Based on the findings, the following evidence-based recommendations are proposed:

1. Organizational Interventions

- Establish structured psychological support programs within SRCA, including counseling services and stress management workshops.
- Implement mandatory rest periods to reduce fatigue from prolonged shifts.
- Enhance staffing levels to balance workload distribution.

2. Training and Capacity Building

- Introduce resilience training, emotional regulation programs, and burnout-prevention modules.
- Incorporate mental health first aid training specifically tailored for EMS personnel.

3. Policy-Level Interventions

- Develop national EMS mental health policies aligned with Vision 2030 health transformation goals.
- Integrate burnout monitoring tools into routine performance evaluations.

4. Research Recommendations

- Conduct longitudinal studies to examine burnout trends over time.
- Evaluate the effectiveness of specific psychological interventions.
- Explore cultural and social determinants influencing coping behaviors.

6. Limitations

This systematic review has several limitations that should be considered when interpreting the findings. First, the majority of included studies employed a cross-sectional design, which restricts the ability to establish causal relationships between workplace stressors and burnout among paramedics in the Saudi Red Crescent Authority (SRCA). Second, all studies relied on self-reported measures, such as the Maslach Burnout Inventory (MBI), DASS-21, and occupational stress scales, which may introduce reporting bias, social desirability bias, and potential inaccuracies related to participants' subjective perceptions.

Third, although a comprehensive search strategy was applied across multiple databases, it is possible that some relevant studies published in local or non-indexed journals were not captured, raising the potential for publication bias. Fourth, most studies used non-probability or convenience sampling, which may limit the representativeness of the findings and affect the generalizability to all SRCA paramedics across regions. Fifth, only studies published in English were included, which may have excluded research conducted in Arabic or regional reports.

Sixth, there was considerable heterogeneity in the instruments, outcomes measured, and operational definitions of stress and burnout, preventing the conduction of a meta-analysis. Differences in cut-off points, sample sizes, and contexts across studies may have influenced the comparability of results. Finally, the review period includes research conducted during the COVID-19 pandemic, during which psychological responses may have been uniquely elevated, potentially inflating estimates of stress and burnout.

Despite these limitations, the review provides a comprehensive and methodologically robust synthesis of the available evidence on workplace stress and burnout among SRCA paramedics, highlighting critical areas for organizational and policy intervention.

7. Implications for Practice

The findings of this systematic review offer important implications for enhancing workforce well-being, operational efficiency, and patient safety within the Saudi Red Crescent Authority (SRCA). First, the consistently high levels of workplace stress and burnout highlight the urgent need for SRCA to strengthen organizational support systems, including structured psychological services, confidential counseling programs, and immediate access to mental health professionals. Implementing dedicated wellness units within EMS regional centers may help paramedics manage traumatic exposure more effectively.

Second, improving workforce scheduling practices is essential. Excessive workloads, long shifts, and frequent night duties were identified as dominant stressors. Standardizing shift rotations, enforcing mandatory rest periods, and optimizing staffing levels across high-demand regions can reduce fatigue and improve performance. Integrating digital workload-monitoring tools may support real-time decision-making to balance case distribution.

Third, frontline paramedics would benefit from comprehensive training and capacity-building initiatives that focus on resilience, emotional regulation, crisis coping strategies, and stress management. Embedding these programs into SRCA's ongoing professional development

structure, including simulation-based support training, can improve adaptability during high-pressure events such as mass-casualty incidents and pandemics.

Fourth, fostering a supportive organizational safety climate is crucial. Enhancing communication between supervisors and field teams, recognizing staff achievements, and offering clear career progression pathways may alleviate depersonalization and emotional exhaustion. Leadership training for station managers can improve team morale and psychological safety.

Finally, SRCA should consider integrating routine burnout screening and mental health assessments into annual evaluations. Early detection of distress symptoms can enable timely intervention and reduce turnover intentions. Policies aligned with Vision 2030 that promote a healthy, safe, and resilient EMS workforce can help ensure sustainable improvements in patient care quality and emergency response outcomes.

8. Conclusion

Workplace stress and burnout among paramedics of the Saudi Red Crescent Authority represent a critical occupational health issue with significant implications for workforce sustainability and patient safety. The evidence synthesized in this review indicates that SRCA paramedics experience moderate-to-high levels of stress and burnout, primarily driven by high workload, emotional strain, traumatic exposure, and demanding shift patterns. These pressures are intensified by the rapid expansion of EMS services and the additional burden posed by global health crises such as COVID-19.

Addressing these challenges requires a multi-level approach involving organizational, training, and policy interventions. Strengthening psychological support systems, improving working conditions, and implementing preventive strategies will be essential to enhance the well-being and performance of SRCA paramedics. Future research should expand on intervention-based studies and explore culturally sensitive approaches to resilience and mental health support.

References

- Al Enazi, A. S., & AlEnzie, A. A. (2018). The prevalence of burnout and its associated factors among ambulance workers in Riyadh, Saudi Arabia. *The Egyptian Journal of Hospital Medicine*, 72(6), 4794–4799. <https://doi.org/10.12816/0047448>
- Almutairi, A. F., & El Mahalli, A. (2020). Burnout and coping methods among emergency medical services professionals. *Journal of Multidisciplinary Healthcare*, 13, 323–330. <https://doi.org/10.2147/JMDH.S244303>
- Alsaif, H. I., Almutairi, M. S., Alamer, A. A., Alghamdi, A. A., & Alzahrani, S. H. (2020). Prevalence of depression, anxiety, and stress among emergency medical services providers in Saudi Arabia. *BMC Emergency Medicine*, 20(1), 16. <https://doi.org/10.1186/s12873-020-00323-5>
- Alshamrani, A. A., Alzahrani, A. A., Alsaqabi, F. M., & Alghamdi, M. S. (2024). Examining distress among Saudi paramedics in response to traumatic events. *Prehospital and Disaster Medicine*. Advance online publication. <https://pubmed.ncbi.nlm.nih.gov/38101183>
- Alsulami, S. A., Alshammari, F. M., Almutairi, A. A., & Alanazi, A. F. (2023). Burnout among emergency medical services professionals in Makkah region, Saudi Arabia. *Saudi Medical Journal*, 44(11), 1179–1186. <https://doi.org/10.15537/smj.2023.44.11.20230468>
- Althobaiti, M. M., Algethami, M. R., Alshamrani, R. M., & Almalki, A. (2025). Work-related stress and burnout among paramedics at the Saudi Red Crescent Authority. *Journal of Paramedic Practice*, 17(1), 22–32.
(الجميع المقالات DOI للمقال بعد، المجلد لا تمنح DOI لا يوجد)

- Al-Wathinani, A., Alsaad, S., Alzahrani, A., & Alghamdi, A. (2023). The characteristics and distribution of emergency medical services providers in Saudi Arabia. *Annals of Saudi Medicine*, 43(1), 63–70. <https://doi.org/10.5144/0256-4947.2023.63>
- Alzibali, A., Alqarni, M., Alsubaie, A., & Alharthi, A. (2024). The impact of job burnout on the performance of paramedics in the Saudi Red Crescent in the Makkah region. *Journal of International Crisis and Risk Communication Research*, 7(1). <https://doi.org/10.63278/jicrcr.vi.924>
- Boudreaux, E., Mandry, C., & Wood, K. (2022). Occupational stress in emergency medical technicians: An updated systematic review. *Prehospital Emergency Care*, 26(4), 523–534. <https://doi.org/10.1080/10903127.2021.1955554>
- Crowe, R. P., Bower, J. K., Cash, R. E., Panchal, A. R., Rodriguez, S. A., & Olivo-Marston, S. E. (2020). Safety incidents and burnout in paramedics: A national survey. *Journal of Patient Safety*, 16(3), e183–e190. <https://doi.org/10.1097/PTS.0000000000000368>
- Hall, M., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff well-being, burnout, and patient safety: A systematic review. *PLOS ONE*, 11(7), e0159015. <https://doi.org/10.1371/journal.pone.0159015>
- Maslach, C., Leiter, M. P., & Jackson, S. E. (2016). *Maslach Burnout Inventory manual* (4th ed.). Mind Garden.
- Reardon, M., Abrahams, R., & Tham, T. (2020). Burnout in paramedics: A systematic review of prevalence, contributing factors, and interventions. *Australasian Journal of Paramedicine*, 17, 1–12. <https://doi.org/10.33151/ajp.17.835>
- Salameh, B., Almutairi, A., & Alsomali, M. (2023). Post-traumatic stress symptoms among emergency medical personnel in Saudi Arabia. *Disaster Medicine and Public Health Preparedness*, 17(5), e287. <https://doi.org/10.1017/dmp.2022.62>
- Saudi Red Crescent Authority. (2024). Annual statistical report. Riyadh: SRCA.
- Shah, M., & Williams, B. (2024). Burnout and mental health outcomes among paramedics: A global systematic review and meta-analysis. *Journal of Affective Disorders*, 345, 349–360. <https://doi.org/10.1016/j.jad.2023.10.123>